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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/699,957 | 11/03/2003 | Arlie R. Conner | 58500US005 | 5093 |

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| EXAMINER | |
|---|---|
| PERVAN, MICHAEL | |

| ART UNIT | PAPER NUMBER |
|---|---|
| 2629 | |

DATE MAILED: 05/17/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

| Office Action Summary | Application No. | Applicant(s) | |
|---|---|---|---|
| | 10/699,957 | CONNER ET AL. | |
| | Examiner | Art Unit | |
| | Michael Pervan | 2629 | |

*-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --*

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

1)☒ Responsive to communication(s) filed on *03 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

4)☒ Claim(s) *1-19* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-19* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

**Application Papers**

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *03 November 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *3/4/04 and 5/7/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1-5, 7-12 and 14-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Melnik et al (US 5,548,347 as submitted by applicant).

In regards to claim 1, Melnik discloses (Figures 1-3) a method for illuminating a liquid crystal panel (52) which has a display area and comprises a plurality of rows (col. 5, lines 43-45) which are sequentially addressed (col. 5, lines 45-49) during a frame refresh cycle, said frame refresh cycle having a period T and each of the plurality of rows having a predetermined refresh time within the frame refresh cycle with the period of time between successive refresh times for each row (the cycle refresh period) being equal to T (col. 6, lines 1-25; the frame refresh cycle is equal to the time it takes to scan each color band over the LCD. The refresh time is time from completion of scanning for the row until the start of the next scanning), said method comprising:

(a) providing illumination light from a light source (24) (col. 4, lines 19-21);

(b) compressing the illumination light into a stripe, which has an area smaller than the display area, said stripe being parallel to the plurality of rows (Figure 2 and col. 4, lines 32-50);

(c) using a moving optical element (50) to cause the stripe of illumination light to scan over the display area in a direction perpendicular to the plurality of rows, said direction corresponding to the direction in which the plurality of rows are sequentially addressed during the frame refresh cycle (col. 4, lines 51-60); and

(d) synchronizing the scanning of the stripe of illumination light with the frame refresh cycle so that for each row of the display, the majority of the illumination light which impinges on the row as a result of the scan is in the last half of the cycle refresh period for the row (col. 4, lines 53-60).

In regards to claim 2, Melnik discloses the majority of the illumination light which impinges on the row as a result of the scan is in the last third of the cycle refresh period for the row (col. 6, lines 15-25; since red lags green by one third and green lags blue by one third, the first 150 lines green impinges in the last third of the period. The second 150 lines blue impinges in the last third of the period. The final 150 red impinges in the last third of the period).

In regards to claim 3, Melnik discloses the ratio of the area of the stripe to the display area is less than or equal to one third (col. 6, 15-25; there are three colors each impinging on a third of the display).

In regards to claim 4, Melnik discloses A method for illuminating a display panel which has a display area and comprises a plurality of rows (col. 5, lines 43-45) which are sequentially addressed during a frame refresh cycle, said frame refresh cycle having a period T and each of the plurality of rows having a predetermined refresh time within the frame refresh cycle with the period of time

between successive refresh times for each row being the cycle refresh period for the row and being equal to T (col. 6, lines 1-25; the frame refresh cycle is equal to the time it takes to scan each color band over the LCD. The refresh time is time from completion of scanning for the row until the start of the next scanning), said method comprising:

(a) providing illumination light from a light source (col. 4, lines 19-21);

(b) compressing the illumination light into a stripe, which has an area smaller than the display area, said stripe being parallel to the plurality of rows (Figure 2 and col. 4, lines 32-50; there are three beams of light each impinging on a third of the display);

(c) sequentially scanning the stripe of illumination light over each of the plurality of rows during the frame refresh cycle (col. 4, lines 57-60); and

(d) synchronizing the scanning of the stripe of illumination light with the frame refresh cycle so that for each row of the display, the majority of the illumination light which impinges on that row as a result of the scan is in the last half of the cycle refresh period for that row (col. 6, lines 1-25; each frame R, G and B light bands are scanned over the rows of the LCD. The first third of rows G impinges in the last third of the frame. The second third of rows B impinges in the last third of the frame. The final third of rows R impinges in the last third of the frame.).

In regards to claim 5, Melnik discloses sequentially scanning the stripe of illumination light comprises using a moving optical element to cause the stripe of

illumination light to sequentially scan the stripe over each of the plurality of rows (col. 4, lines 51-60).

In regards to claim 7, Melnik discloses the moving optical element comprises a rotating prism (col. 4, lines 51-57).

In regards to claim 8, Melnik discloses synchronizing the scanning of the stripe of illumination light comprises synchronizing the scanning of the stripe of illumination light with the frame refresh cycle so that for each row of the display, the majority of the illumination light which impinges on that row as a result of the scan is in the last third of the cycle refresh period for that row (col. 6, lines 15-25; since red lags green by one third and green lags blue by one third, the first 150 lines green impinges in the last third of the period. The second 150 lines blue impinges in the last third of the period. The final 150 red impinges in the last third of the period).

In regards to claim 9, Melnik discloses compressing the illumination light into a stripe comprises compressing the illumination light into a stripe which has an area that is one third or less of the display area (col. 6, 15-25; there are three colors each impinging on a third of the display, therefore the light impinged by each color, R, G and B, is less than the display area).

In regards to claim 10, Melnik discloses compressing the illumination light into a stripe comprises compressing the illumination light into a stripe using the moving optical element (col. 4, lines 32-50).

In regards to claim 11, Melnik discloses the display panel comprises a liquid crystal display panel (col. 4, line 64-col. 5, line 3).

In regards to claim 12, Melnik discloses a display comprising:

an illumination system (col. 4, lines 32-60) comprising

a light source (col. 4, lines 19-21), and

a movable optical element (col. 4, lines 51-57),

wherein the illumination system is capable of compressing light from the light source into a stripe of illumination light that has an area smaller than the display area (Figure 2 and col. 4, lines 32-50; there are three beams of light each impinging on a third of the display);

a display panel comprising a display area and a plurality of rows (col. 5, lines 43-45); and

a processor configured and arranged to sequentially address each of the plurality of rows of the display panel during a frame refresh cycle to display an image (col. 5, lines 24-42; the signal processor (processor) arranges the input video signal from parallel RGB to a serial stream), wherein the frame refresh cycle has a period T and each of the plurality of rows has a predetermined refresh time within the frame refresh cycle with the period of time between successive refresh times for each row being the cycle refresh period for the row and being equal to T (col. 6, lines 1-25; the frame refresh cycle is equal to the time it takes to scan each color band over the LCD. The refresh time is time from completion of scanning for the row until the start of the next scanning, the processor being further configured and arranged to move the optical element to scan the stripe of illumination light sequentially over each of the plurality of rows in a synchronized manner (col. 4, lines 51-60) so that the majority of the

illumination light impinges on each row during the last half of the cycle refresh period for that row (col. 6, lines 1-25; each frame R, G and B light bands are scanned over the rows of the LCD. The first third of rows G impinges in the last third of the frame. The second third of rows B impinges in the last third of the frame. The final third of rows R impinges in the last third of the frame.).

In regards to claim 14, Melnik discloses the movable optical element comprises a rotatable prism (col. 4, lines 51-57).

In regards to claim 15, Melnik discloses the processor is configured and arranged to move the optical element to scan the stripe of illumination light sequentially over each of the plurality of rows in a synchronized manner so that the majority of the illumination light impinges on each row during the last third of the cycle refresh period for that row (col. 4, lines 51-60 ,col. 5, lines 24-42 and col. 6, lines 15-25; since the prism moves in synchronism with the video signal which is processed by the signal processor (processor), the signal processor therefor controls the movement of the prism. Also each frame R, G and B light bands are scanned over the rows of the LCD. The first third of rows G impinges in the last third of the frame. The second third of rows B impinges in the last third of the frame. The final third of rows R impinges in the last third of the frame.).

In regards to claim 16, Melnik discloses the movable optical element is capable of compressing light from the light source into a stripe of illumination light that has an area that is one third or less of the display area (col. 4, lines 32-60).

In regards to claim 17, Melnik discloses a projection lens that receives light from the display panel (col. 5, lines 3-6).

In regards to claim 18, Melnik discloses the display panel comprises a liquid crystal display panel (col. 4, line 64-col. 5, line 3).

In regards to claim 19, Melnik discloses the movable optical element is capable of compressing light from the light source into a stripe of illumination light that has an area smaller than the display area (col. 4, 15-25; there are three colors each impinging on a third of the display, therefore the light impinged by each color, R, G and B, is less than the display area).

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 6 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Melnik in view of Henderson et al (US 5,398,082 as submitted by applicant).

In regards to claim 6, Melnik does not disclose the moving optical element comprises a moving lens.

Henderson discloses the moving optical element comprises a moving lens (col. 5, lines 41-46).

Since there was no benefit or advantage described in the specification for choosing a lens over a prism, the examiner believes this to be a designer's choice.

In regards to claim 13, Melnik does not disclose the movable optical element comprises a movable lens.

Henderson discloses the movable optical element comprises a movable lens (col. 5, lines 41-46).

Since there was no benefit or advantage described in the specification for choosing a lens over a prism, the examiner believes this to be a designer's choice.

***Conclusion***

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Prior art (Janssen et al US 5,416,514) is deemed relevant since it discusses scanning a beam of light over an LCD. Prior art (Dean US 2004/0056983) is deemed relevant since it discusses scanning a beam of light over an LCD.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Pervan whose telephone number is (571) 272-0910. The examiner can normally be reached on Monday - Friday between 8am - 5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Amr Awad can be reached on (571) 272-7764. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

MVP
May 11, 2006

AMR A. AWAD
PRIMARY EXAMINER